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Gilbert Grasmuck

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EGBERT LAW OFFICES  
412 MAIN STREET, 7TH FLOOR  
HOUSTON, TX 77002

EXAMINER

SHEIKH, KATHRYN D

ART UNIT

PAPER NUMBER

3764

MAIL DATE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/575,507 | <b>Applicant(s)</b><br>GRASMUCK, GILBERT |  |
|                              | <b>Examiner</b><br>KATHRYN D. SHEIKH | <b>Art Unit</b><br>3764                  |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Drafts, Person's Patent Drawing, Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/28/2006</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statement filed 7/28/2006 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. Reference DE 202 13 232 is provided in German, but an English abstract is not provided. A machine translation of the text is being provided on form 892 to correct this deficiency.

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the flexible element intercalated between said volute and dynamic assembly (claim 4) (see annotated Figs. below), intermediary of an impervious material (claim 10), sensors for detecting angular position (claim 13), motor with permanent magnets at a rotor under electronic means (claim 14), and a single volute covering several wheels (claim 17) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure

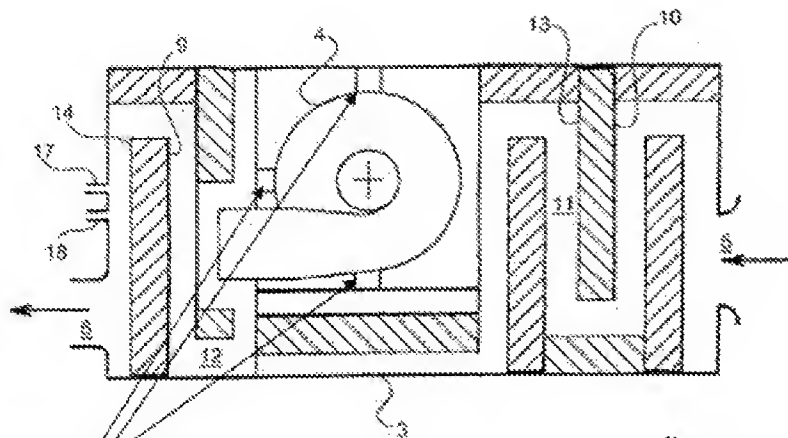
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number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to because a) what appear to be connections or fittings between the volute and the casing are unlabeled (see annotated Figs. below, page 9, para [0042] for discussion); b) the hash marks indicating elastomer material are inconsistent; and c) it is unclear what cross section of Fig. 1 is being presented in Fig. 2 (top view? top view rotated? side view?). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several

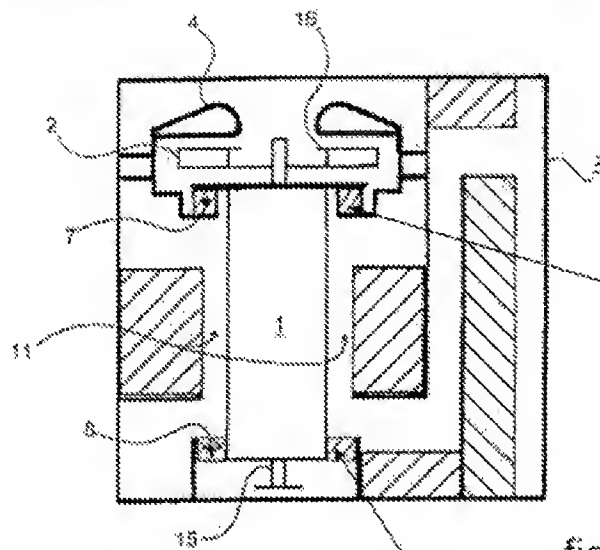
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views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.



What is this?

fig. 1



Elastomer not  
shown connected to  
"dynamic assembly"

fig.2

Hash marks different than "8"

### ***Specification***

The disclosure is objected to because of the following informalities:

1. Page 2, para [0003] recites "US 3.302.105" and GB 373.146, which should either have commas or spaces in the place of the existing periods.

2. Page 6, para [0025] recites “not only a mean of...but also a mean for”, which appears to be intended to read “not only a means of...but also a means for”.

3. Page 7, para [0029] recites "These partitions are for example recessed and fixed in its interior space", where the object of the possessive adjective "its" is unclear. Based on the discussion of para [0029], it is suggested that "its" be replaced by "the casing's".

4. Page 9, para [0044] recites “flexible elements in elastomer 7,8...first flexible element...second flexible element”, wherein it would be more clearly drawn to the structural elements of Fig. 2 if worded as “flexible elements in elastomer 7,8...first flexible element (7)...second flexible element (8)”.

Appropriate correction is required.

### ***Claim Objections***

Claim 1 objected to because of the following informalities: line 8 recites “volute being integral part”, which appears to be intended to read “volute being *an* integral part”. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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Claim 17 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is unclear how several wheels are intended to be integrated into the ventilation device, wherein a single volute covers several wheels. Are the wheels to be stacked next to each other, or spaced apart in some manner? Are they to have a separator between them within the volute? Are they being driven by the same motor?

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites "a flexible means...forming a dynamic assembly", which appears to include said flexible means as a component of said dynamic assembly. However, upon reading dependent claims 2-5 and the specification page 9, para [0042], it appears that the flexible means is not considered as part of the dynamic assembly. The claim must be re-worded to more clearly define the dynamic assembly to avoid possible antecedent basis concerns in dependent claims.



Claim 10 recites "partitions being recessed", wherein is unclear as compared to what the partitions are recessed. For purposes of examination, as best understood, recessed is interpreted to mean spaced inwardly from an inlet or outlet opening.

Claim 1 fulfills the requirements to be considered with regards to the specification as set forth under 35 U.S.C. 112(6). As such, "flexible means" will interpreted to mean "mechanical springs of wire, blade or elastic washer type or analog, flexible material such as elastomer or foam, or magnetic repulsion" (para [0023]), or equivalents thereof.

Applicant is informed that though claim 5 contains "means for" language by reciting "connecting means" and "positioning means", said means are not further described in the specification (para [0025]) in a way that makes clear what is intended by said means. As such, the claim limitations are not presumed to invoke 35 U.S.C. 112(6). See MPEP 2181.I.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 8 and 16 are rejected under 35 U.S.C. 102(a) as being anticipated by Muckelmann *et al.* (US 5,388,970; hereinafter "Muckelmann").

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Regarding claims 1 and 2, Muckelmann discloses a high-speed centrifugal ventilation device (air pump) (Fig. 1) capable of assisting a patient's respiratory function, the device comprising:

a centrifugal ventilator (electric motor 4, shaft 20 and impeller 17) (Fig. 1) housed inside a casing (housing 1) and comprised of:

at least one wheel (17) rotating at a speed driven by a driver (4) and being equipped with a volute (housing 2), and

channels circulating a gaseous flux (annular duct 8, chamber 3 and annular duct 18), said channels being arranged inside said casing upstream and downstream of the ventilator, induction and discharge of said gaseous flux through openings (7, 19) of said casing for intake and expulsion respectively, said volute being an integral part of said casing so as to form an integral fixed assembly (Fig. 1); and

a flexible means comprising flexible material (elastic motor supports 12,14), intercalated between the fixed assembly and said driver (Fig. 1), forming a dynamic assembly to prevent transmission of vibration generated by said dynamic assembly towards the fixed assembly (vibrations caused by the...electric motor...are cushioned in the motor supports and no longer are transmitted to the housing, column 3, lines 5-10).

Regarding claim 3, Muckelmann discloses the device as per claim 2, wherein Muckelmann further discloses the flexible means is intercalated between the dynamic assembly and the fixed assembly for connection to each other, with the dynamic assembly being supported in suspension by the fixed assembly (two spaced elastic supports supporting the electric motor from the housing, column 3, lines 28-29).

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Regarding claim 4, Muckelmann discloses the device as per claim 3, wherein Muckelmann further discloses said flexible means intercalated between the dynamic assembly and the fixed assembly comprise a first flexible element (elastic motor support 14) intercalated between said volute and the dynamic assembly (Fig. 1) and a second flexible element (elastic motor support 12) intercalated between the drive base and said casing.

Regarding claim 5, Muckelmann discloses the device as per claim 4, wherein Muckelmann further discloses the first and second flexible elements are comprised of connecting means between the fixed assembly and the dynamic assembly and positioning means for the dynamic assembly inside said casing (Fig. 1) (as best understood, the flexible elements (elastic motor supports 12,14) of Muckelmann serve to connect the motor assembly (4,17,20) and the housing (1) and position said motor assembly within said housing).

Regarding claim 8, Muckelmann discloses the device as per claim 1, wherein Muckelmann further discloses at least one channel (chamber 3) (Fig. 1) is arranged around the driver (electric motor 4), cooling said driver through a passage of gaseous flow in proximity of said driver (a portion of the air stream in chamber 3 flows through air cooling channels (not shown) in the electric motor and recombines with the remainder of the air stream, column 2, lines 34-37).

Regarding claim 16, Muckelmann discloses the device as per claim 1, wherein Muckelmann further discloses each wheel is equipped with a volute (Fig. 1).

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Claims 1-3, 8, 9, 11, 13, and 16 are rejected under 35 U.S.C. 102(a) as being anticipated by Hansmann (US 6,474,960 B1; hereinafter "Hansmann").

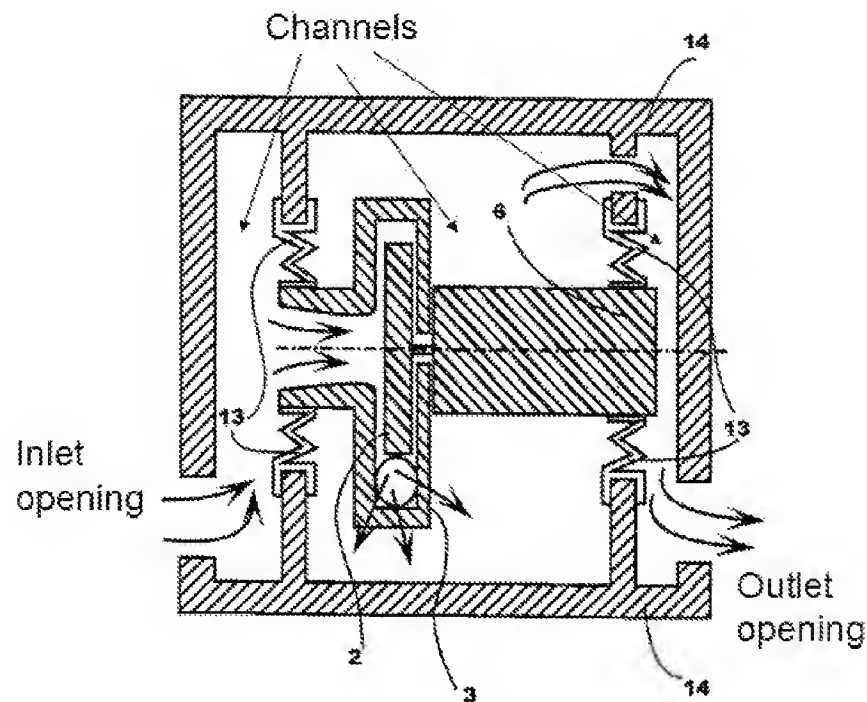
Regarding claims 1 and 2, Hansmann discloses a high-speed centrifugal ventilation device for assisting a patient's respiratory function (abstract), the device comprising:

a centrifugal ventilator (wheel 2 and motor 6) (Fig. 3) housed inside a casing (housing 3 and capsule 4) and comprised of:

at least one wheel (2) rotating at a speed driven by a driver (6) and being equipped with a volute (3), and

channels circulating a gaseous flux, said channels being arranged inside said casing upstream and downstream of the ventilator (Fig. 3 modified, below), induction and discharge of said gaseous flux through openings of said casing for intake and expulsion respectively, said volute being an integral part of said casing (closed capsule 14 formed in part by the housing 3, column 5, line 13) so as to form an integral fixed assembly; and

a flexible means (separate mass 8 and membranes 13) (Figs. 2 and 3), wherein separate mass 8 is a mechanical spring, intercalated between the fixed assembly and said driver, forming a dynamic assembly to prevent transmission of vibration generated by said dynamic assembly towards the fixed assembly (coupling of the motor...and the housing...via the intermediary of a separate mass via a spring element has proved to be advantageous for reducing the structure-borne noise occurring due to the high-speed motor, column 3, lines 30-34).



(modified)  
**Fig. 3**

Regarding claim 3, Hansmann discloses the device as per claim 2, wherein Hansmann further discloses the flexible means is intercalated between the dynamic assembly and the fixed assembly for connection to each other, with the dynamic assembly being supported in suspension by the fixed assembly (Figs. 2 and 3, column 3, lines 9-55, column 4 lines 11-15).

Regarding claim 8, Hansmann discloses the device as per claim 1, wherein Hansmann further discloses at least one channel is arranged around the driver (see Fig. 3 modified, above), cooling said driver through a passage of gaseous flow in proximity of said driver.

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Regarding claim 9, Hansmann discloses the device as per claim 1, wherein Hansmann further discloses at least one channel is organized in the form of a baffle (Fig. 3 modified, above).

Regarding claim 11, Hansmann discloses the device as per claim 1, wherein Hansmann further discloses at least one wheel comprised of material for low inertia in rotation (high-speed radial compressor [centrifugal fan] with low moments of inertia used in order for the radial compressors to be able to directly follow the current pressure requirement of the patient via a change in speed, column 1, lines 15-16).

Regarding claim 13, Hansmann discloses the device as per claim 1, wherein Hansmann further incorporates by reference in column 1, lines 35-36 Kullik (US 6,418,927 B1; hereinafter "Kullik"). Hansmann in view of the extrinsic evidence provided by Kullik discloses a driver equipped with sensors detecting angular position of a rotor (Kullik Fig. 1; position of the permanent magnet 2 is preferably detected by means of Hall sensors, Kullik column 2, lines 55-56).

Regarding claim 16, Hansmann discloses the device as per claim 1, wherein Hansmann further discloses each wheel is equipped with a volute (Fig. 3).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muckelmann in view of Challis (US 4,174,020; hereinafter "Challis").

Regarding claim 6, Muckelmann discloses the device as per claim 4, wherein Muckelmann further teaches the first and second flexible elements (elastic motor supports 12,14) are comprised of elastomer material, but Muckelmann is silent regarding said material having a hardness, volume and conformation providing the first and second flexible elements with resonance frequencies in a range of 10 Hz to 300 Hz. However, as taught by Challis, it is well known in the art that intensity of the noise of a centrifugal fan is particularly high in the range 30 Hz to 250 Hz (column 1, lines 20-25). It would have been obvious to one of ordinary skill in the art at the time of invention to modify the centrifugal ventilation device with flexible elastic elements taught by Muckelmann to include said elements comprised of a material having a hardness, volume and conformation providing the first and second flexible elements with resonance frequencies in a range of 10 Hz to 300 Hz, in order to provide said elements comprised of a material suitable for dampening centrifugal fan noise in the frequencies known to produce the most intense noise as taught by Challis.

Claims 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hansmann in view of Jeng *et al.* (US 6,217,281 B1; hereafter "Jeng").

Regarding claim 7, Hansmann discloses the device as per claim 1, but Hansmann is silent regarding said channels lined with a mass of sound-absorbing material. Jeng teaches a low-noise fan-filter unit comprising a centrifugal fan with channels forming a tortuous air passageway (abstract; Fig. 4), wherein said channels are lined with a mass of sound-absorbing material (sound absorbing materials 80,80a). It would have been obvious to one of ordinary skill in the art at the time of invention to modify the centrifugal ventilation device with channels taught by Hansmann to include said channels lined with a mass of sound-absorbing material as taught by Jeng, in order to provide additional noise reduction means within the primary air flow pathways between the fan and the casing outlets.

Regarding claim 10, Hansmann discloses the device as per claim 1, wherein Hansmann further discloses at least one said channel arranged inside said casing by partitioning said casing with partitions (Fig. 3), said partitions being recessed and attached in an inside space thereof, but Hansmann is silent regarding said attachment through an intermediary of an impervious material, forming a seal against the passage of acoustic waves. Jeng teaches a low-noise fan-filter unit comprising a centrifugal fan in a casing with channels forming a tortuous air passageway (abstract; Fig. 4), said channels formed by partitioning said casing with partitions (noise reduction plates 501 and 502), said partitions being recessed and attached in an inside space thereof



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through an intermediary of an impervious material (sound-absorbing materials 80,80a via rounded corner 51), forming a seal against passage of acoustic waves. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the centrifugal ventilation device with channels formed by recessed partitions taught by Hansmann to include said partitions being attached through an intermediary of an impervious material as taught by Jeng, in order to provide tortuous and extended air passageways with increased contact area with sound-absorbing material to enhance noise reduction (column 3, lines 33-37).

Claims 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hansmann in view of DeVries *et al.* (US 2003/0230307 A1; hereinafter "DeVries").

Regarding claim 12, Hansmann discloses the device as per claim 1, but Hansmann is silent regarding at least one wheel equipped with a flange comprised of rigid low density foam, attached to the wheel by glueing. DeVries teaches a patient ventilation device (10) (Fig. 1) with centrifugal ventilator (rotary drag compressor 30), wherein the wheel (multi-bladed rotor 104) (Fig. 9) is equipped with a flange (blades 128) comprised of rigid low density foam (glass-filled epoxy, para [0227]), which are attached to the wheel by glueing (a suitable adhesive such as epoxy may be utilized to bond the radial edges of the blades 128 within their corresponding blade-receiving slots 126, para [0227]). It would have been obvious to one of ordinary skill in the art at the time of invention to modify the centrifugal ventilation device with wheel taught by Hansmann to include said wheel equipped with a flange comprised of rigid low density

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foam, attached to the wheel by glueing as taught by DeVries, in order to optimize the controllability of the rotor velocity and minimize the wear or stress on the system drive components from repeated abrupt starting and stopping of the rotor by minimizing the overall mass of the rotor [0227].

Regarding claim 15, Hansmann discloses the device as per claim 1, but Hansmann is silent regarding two intakes of gaseous flux circulation, arranged in proximity of an evacuation orifice of said casing, being intended to measure fluid pressure at the outtake and to permit injection of oxygen to enrich a gaseous mixture which is delivered to a patient. DeVries teaches the need for oxygen blending to provide oxygen into the inspiratory gas flow and the need to measure fluid pressure at an output (abstract). It would have been obvious to one of ordinary skill in the art at the time of invention to modify the ventilation device with wheel taught by Hansmann to include two gaseous intakes arranged in proximity of an evacuation orifice of said casing, being intended to measure fluid pressure at the outtake and to permit injection of oxygen to enrich a gaseous mixture which is delivered to a patient as taught by DeVries, in order to provide means for monitoring the air pressure being received by the patient to ensure operation within system parameters [0045], and to provide supplementary oxygen to patients that require it [0046].

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hansmann.

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Regarding claim 14, Hansmann discloses the device as per claim 1, wherein Hansmann further incorporates by reference in column 1, lines 35-36 Kullik (US 6,418,927 B1; hereinafter "Kullik"). Hansmann in view of the extrinsic evidence provided by Kullik discloses a driver with permanent magnets at a rotor (Kullik Fig. 2; magnet 2), without position sensors (position of the permanent magnet...detected by ...voltages induced in the coils, column 2, lines 55-57), driven by means of a electronically commuted or commutated DC motor (column 2, lines 45-50). Hansmann is silent regarding said driver comprised of a synchronous motor under dependence of electronic means with vectorial control of flow. However, synchronous motors under dependence of electronic means with vectorial control of flow are well known in the art. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the device comprising a driver with permanent magnets at a rotor driven by electric means taught by Hansmann to include said driver comprised of a synchronous motor under dependence of electronic means with vectorial control of flow, in order to provide a provide a motor capable of running smoothly and efficiently at low speeds.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hansmann in view of Troxler (US 2,486,619; hereinafter "Troxler").

Regarding claim 17, as best understood, Hansmann is silent regarding a single volute covering several wheels. Troxler teaches a blower system comprising a single volute (multi-stage fan) (Figs. 1 and 2) covering several wheels (impellers 38). It would have been obvious to one of ordinary skill in the art at the time of invention to modify the

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ventilator with blower comprising a single volute covering a wheel taught by Hansmann to include a blower comprising a single volute covering several wheels as taught by Troxler, in order to provide a multi-stage blower for additional control of air flow and pressure in a simple casing that is economically and easily manufactured (column 1, lines 21-21).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Additional references regarding sound-absorbing-material-lined passageways in ventilators: Truitt *et al.* (US 6,644,311 B1); Kuehn (US 6,837,260 B1); Kucharczyk (US 4,611,531); Klopp *et al.* (US 2002/0056453 A1). Additional references regarding the separation/suspension of motors and fan assemblies from casings in ventilators for noise reduction: Muckelmann (DE 10013960 A1, wherein US 5,388,970 above is provided as an English translation); Davis (US 4,560,395); Lindsjo *et al.* (US 3,143,284); Laing (US 3,255,957); Winkler *et al.* (US 7,189,053 B2); Hudson (US 4,171,190); Norbury, Jr. *et al.* (US 5,397,950); Jenn (US 2,823,598); Bourne (US 1,938,799); Wentz (US 5,567,127); Baecke *et al.* (DE 10253937 B3, wherein US 2005/0210622 A1 is submitted as an English translation). Reference regarding ventilators with the motor placed in the air flow path for cooling: Klockseth *et al.* (US 5,906,203); Virr *et al.* (EP 1,643,131 A2). Additional reference for dual wheel, single volute ventilators: Sager (US 4,902,203). Additional reference regarding foam flanges on fan wheels: Parker *et al.* (US 2004/0165986 A1).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to KATHRYN D. SHEIKH whose telephone number is (571)270-5178. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, LoAn Thanh can be reached on (571)272-4966. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. D. S./  
Examiner, Art Unit 3764

/LoAn H. Thanh/  
Supervisory Patent Examiner, Art Unit 3764